

24



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,939	07/11/2003	Yukari Aoki	03500.017408	3022

5514 7590 12/08/2006

FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
----------

GOMA, TAWFIK A

ART UNIT	PAPER NUMBER
----------	--------------

2627

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/616,939	<b>Applicant(s)</b> AOKI, YUKARI	
	<b>Examiner</b> Tawfik Goma	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al (US 6826131) in view of Kagami et al (US 5341349).

Regarding claim 1, Kawaguchi discloses a magneto-optical recording medium comprising: a substrate (15, fig. 1); an underlying layer provided on the substrate (10, fig. 1); and a magnetic layer having at least a magnetic domain wall displacement layer in which a magnetic domain wall is displaced (11, fig. 1), a recording layer storing information (13, fig. 1), and a switching layer provided between said magnetic domain wall displacement layer and said recording layer (12, fig. 1), the switching layer having a temperature lower than that of the each magnetic layer (col. 7 lines 19-40), wherein the underlying layer is adjacent to the magnetic domain wall displacement layer (fig. 1). Kawaguchi fails to disclose wherein the underlayer is formed of a first and second underlayer and said second underlying layer is adjacent to said magnetic domain wall displacement layer, said first underlying layer is adjacent to said second underlying layer and on the side of said substrate, and said first underlying layer has a lower

density than a density of said second underlying layer. In the same field of endeavor, Kagami discloses first and second underlayers (12, 13 fig. 5) wherein the first underlayer is adjacent to the substrate (12, 11, fig. 5) and the first underlying layer has a lower density than a density of the second underlying layer (col. 2 lines 41-57). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the recording medium disclosed by Kawaguchi by providing a first and second under layer with different densities. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the first and second underlayer in order to enhance the recording sensitivity and mechanical strength of the medium (see Kagami col. 2 lines 52-57)

Regarding claim 2, Kagami further discloses a method of producing a medium comprising a film-forming step of forming a first underlying layer and a second underlying layer on a substrate by sputtering, wherein in said film-forming step, a sputtering gas pressure during formation of said first underlying layer is higher than a sputtering gas pressure during formation of said second underlying layer (table 3 and col. 9 lines 54-61).

Regarding claim 3, Kagami further discloses wherein in said film-forming step, said second underlying layer is continuously formed on said first underlying layer by changing a gas flow rate after said first underlying layer is formed (col. 9 lines 54-61).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al (US 6826131) in view of Kagami et al (US 5341349) as applied to claims 1-3 above and further in view of Chen (US 4202932).

Regarding claim 4, Kawaguchi in view of Kagami disclose everything claimed as applied to claim 1 above. Kagami further to disclose the method of producing the disk including the

Art Unit: 2627

step a film-forming step of forming a first underlying layer and a second underlying layer on a substrate by sputtering (col. 9 lines 54-61). Kagami fails to disclose wherein in said film-forming step, a distance between a target and said substrate during formation of said first underlying layer is larger than a distance between the target and said substrate during formation of said second underlying layer. In the same field of endeavor, Chen discloses a method of controlling a deposition rate or density of the layer to be formed by controlling a distance between a substrate and a target during sputtering (col. 5 lines 33-41). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the method of producing the medium disclosed by Kawaguchi in view of Kagami by controlling a distance from substrate and a target. The rationale is as follows: One of ordinary skill in the art would have been motivated to control a density of the layer by controlling the substrate to target distance as a well known alternative parameter set for controlling the deposition rate.


### ***Conclusion***

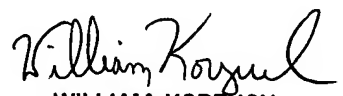
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
T. Goma  
12/6/2006

  
WILLIAM KORZUCH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600